GEOGRAPHICAL AND TEMPORAL MOVEMENTS OF HUMPBACK WHALES IN WESTERN AUSTRALIAN WATERS. *(ABSTRACT)* This report was initiated by a research grant from Woodside Energy to interpret the timing of movements of humpback whales (*Megaptera novaeangliae*) through the Kimberley region of north Western Australia. Through extra funding by Environment Australia, the scale of the project was expanded to an analysis of the Western Australian photo-identification catalogue for the purpose of describing the temporal and spatial movements of these whales, as completely as possible, along their entire migratory route. Through compilation of historical whaling data, recent aerial and boat-based survey data, a general framework for the overall peaks of migration has been estimated. Data to be obtained from the analysis of individually identified whales using a computerised matching system is expected to add further detail and accuracy to these estimates at the completion of this project (May 2001).

The migratory paths of humpback whales along the Western Australian coast can be expected to lie within the continental shelf boundary or 200m bathymetry. Major resting areas along the migratory path have been identified at Exmouth Gulf (southern migration only) and at Shark Bay. The northern endpoint of migration and resting area for reproductively active whales in the population appears to be Camden Sound in the Kimberley. A 6,750 square mile area of the Kimberley region, inclusive of Camden Sound, has also been identified as a major calving ground. The northern and southern migratory paths have been shown to be divergent at the Perth Basin, Dampier Archipelago and Kimberley regions. In all cases the northern migratory route is further off-shore.

Data from photographically resighted individuals suggests that singers (reproductively active male whales) may have the slowest migratory rate of all measured age and sex classes in the population, including cow/calf pods. However, current migratory rate estimates, when compared with historical whaling data, are likely to be negatively biased since they are measured across regions that include resting areas. Estimates of residency periods in resting areas gained from photographic resight analysis can be expected to help quantify this bias.

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REAL TIME TRACKING OF HUMPBACK WHALES. *(ABSTRACT)* For several years a team of researchers has been based at Byron Bay for a two-week period to observe, photograph and identify humpback whales (*Megaptera novaeangliae*). In the past, compass binoculars and a crude device called a TCM card were used to obtain a pod's position. Optical theodolites were later used to acquire more accurate locations of whale pods but required large amounts of post processing. Since 1998 staff and students from the University of Newcastle have assisted in the Cape Byron Whale Research Project by using their surveying skills to measure pod locations. A real time tracking system called 'Cyclops' has been developed. The system consists of a theodolite or total station connected to a personal computer (Windows 95/NT). Once the instrument is pointed to a pod, the horizontal and vertical angles are directly sent to the computer. 'Cyclops' then calculates the position of the pod correcting for tides, earth curvature and refraction. The program determines which pod was observed and plots its position on a map shown on the computer screen, as well as the pod's makeup, activity, speed, course, distance, direction and time of observation. The program also allows for factors such as weather conditions and visibility to be input as well as having the capability of predicting a pod's position at any time based on its average speed and course. The system has helped in obtaining accurate position fixes of whale pods in real time and displaying the information in a useful manner.

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AUSTRALIAN WHALE-WATCH REGULATIONS AND GUIDELINES: ARE OPERATORS COMPLYING? *(ABSTRACT)* Effective management of the whale-watch industry is dependent on operators' compliance with the appropriate management regimes. Operators' compliance with existing regulations and guidelines and the manner in which regulations have been enforced have not been studied in detail. Different management and regulatory strategies across adjacent jurisdictions are present in Australia, thus allowing for their comparison.

The study aims to test whether existing distance and approach conditions for whale-watch vessels are an effective regulatory tool. Although National Guidelines have been introduced in Australia, regulatory controls differ between states, allowing a comparison of management strategies. A combination of observational data and qualitative surveys are being used to elicit the full picture of the effectiveness of these strategies. Movements of whale-watch vessels in relation to focal humpback whale pods in Queensland and New South Wales were plotted. This provided an indication of operators' compliance with distance and approach guidelines and regulations. Questionnaire surveys were used to elicit the potential influence of operators' beliefs and perceptions concerning the whale-watch guidelines on compliance.

Results to date are indicative of a high level of compliance to the whale-watch guidelines/regulations. Almost all instances of vessels in closer proximity than 100m to the whales were due to the movement of the pod towards the vessel. Additionally, survey questionnaire data reflect approval of the regulations/ guidelines, thus supporting the quantitative result.

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